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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,705	12/20/2000	Juha Salokannel	460-009952-US(PAR)	9125

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Clarence A. Green
Perman & Green, LLP
425 Post Road
Fairfield, CT 06430

EXAMINER

HENNING, MATTHEW T

ART UNIT	PAPER NUMBER
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2131

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/742,705	Applicant(s) SALOKANNEL, JUHA	
	Examiner Matthew T. Henning	Art Unit 2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1 This action is in response to the communication filed on 5/15/2006.

2 **DETAILED ACTION**

3 ***Response to Arguments***

4 Applicant's arguments filed 8/31/2005 have been fully considered but they are not
5 persuasive. Applicant argues primarily that:

6 A. Dent did not disclose that “for the transmission of the encryption key a broadcast
7 control channel control field is selected which is not used as a general broadcast control
8 channel control field”.

9 Regarding applicant’s argument that Dent did not disclose that “for the transmission of
10 the encryption key a broadcast control channel control field is selected which is not used as a
11 general broadcast control channel control field”, the examiner does not find the argument
12 persuasive. First, as disclosed in the specification of the instant application on page 14 Line 33 –
13 Page 15 Line 30, in “transmitting the encryption key”, the key is not actually transmitted, but
14 instead an encryption number (seed used to generate the key) is transmitted, and during handover
15 the number is transmitted as soon as possible and for example three time in succession. Dent
16 disclosed that upon handoff, the base station transmitted the synchronization information (seed
17 for generating the key) over a high data rate control channel, as can be seen in Col. 6 Lines 15-
18 30. Further, Dent disclosed that this high data rate channel was “generally” used to transmit
19 cryptographically encoded data bits, but upon handoff was used to send the synchronization
20 information (See Dent Col. 6 Line 50 – Col. 7 Line 2). As such, the high data rate channel of
21 Dent was not a “general broadcast control channel” but instead was used specifically to transmit

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1 the encoded data bits until handoff was required. Therefore, the examiner does not find the
2 argument persuasive, and therefore has maintained the rejection presented below.

3 All rejections and objections not presented below have been withdrawn.

4 Claims 1-21 have been examined.

5 ***Claim Rejections - 35 USC § 112***

6
7 The following is a quotation of the second paragraph of 35 U.S.C. 112:

8 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
9 subject matter which the applicant regards as his invention.

10
11 Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for
12 failing to particularly point out and distinctly claim the subject matter which applicant regards as
13 the invention.

14 Claims 1, 9, 19, and 21 recite the limitation "the transmission of the encryption key".
15 There is insufficient antecedent basis for this limitation in the claims. The examiner will assume
16 for purposes of searching prior art that the limitation was meant to read "the transmission of the
17 information about the encryption key" as is consistent with the claim language and the
18 specification.

19 ***Claim Rejections - 35 USC § 102***

20 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the
21 basis for the rejections under this section made in this Office action:

22 *A person shall be entitled to a patent unless –*

23 *(b) the invention was patented or described in a printed publication in this or a foreign*
24 *country or in public use or on sale in this country, more than one year prior to the date of*
25 *application for patent in the United States.*
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1 Claims 1-5, 8, 9-13, 16, and 18-21 are rejected under 35 U.S.C. 102(b) as being
2 anticipated by Dent (U.S. Patent 5,081,679) hereinafter referred to as Dent.

3 Claim 1 recites defining a set of keys and then selecting a key, from the set, for use in
4 encrypting information transmitted between an access point and a mobile terminal. Dent
5 disclosed creating keys in the form of a key stream (See Dent Col. 5 Lines 51-57) and using the
6 generated keys to encrypt the communications between the Base Station (BS) and the Mobile
7 Station (MS) (See Dent Col. 5 Lines 57-66). It was inherent that a key was selected from the
8 stream in order to encrypt the communications between the BS and the MS.

9 Claim 1 further recites transmitting from the access point, at intervals, data about the
10 encryption key. Dent disclosed transmission of key synchronization information from the BS to
11 the MS (See Dent Col. 6 Lines 8-12).

12 Claim 1 further recites setting up a transmission connection between the mobile terminal
13 and the first access point. In order for there to have been communication between the BS and the
14 MS (See Dent Col. 6 Lines 5-8), it was inherent that a connection was first established between
15 the two stations.

16 Claim 1 also recites performing a handover to a second access point, involving setting up
17 the connection between the second access point and the mobile terminal and also transmitting
18 information over a broadcast control channel, about the encryption key in the second access
19 point, to the mobile terminal. Dent disclosed performing a handoff from a first BS to a second
20 BS (See Dent Col. 6 Lines 12-15) and the second BS transmitting key synchronization
21 information to the MS over a high data rate control channel (See Dent Col. 6 Lines 15-30). Dent

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1 also disclosed setting up a connection between the MS and the BS (See Dent Col. 6 Lines 30-
2 39).

3 Claim 1 further recites that for the transmission of the [information about the] encryption
4 key a broadcast control channel control field is selected which is not used as a general broadcast
5 control channel control field (See Dent Col. 6 Line 50 – Col. 6 Line 2 and Col. 10 Paragraph 3).

6 Regarding claim 2, Dent disclosed generating the keys as a function of a block counter
7 and a secret key (See Dent Claims 32-33). Dent further disclosed that the synchronization
8 information sent to the mobile station was the current bits of the base station block counter,
9 which correspond to the current key (See Dent Claim 34).

10 Regarding claim 3, Dent disclosed a frame counter, which was used to update the cipher
11 code (See Dent Col. 10 Lines 14-17).

12 Regarding claim 4, Dent disclosed a speech coder frame (See Dent Col. 9 Line 20). It
13 was inherent that the speech coder frames of the second BS be sent to the mobile stations
14 connected to the second BS in order for each MS to receive its corresponding speech
15 communications.

16 Regarding claim 5, Dent disclosed creating keys in the form of a key stream in both the
17 BS and the MS (See Dent Col. 5 Lines 51-57) for use in encrypting the communications in both
18 directions between the BS and the MS. It was inherent that these keys were stored at both the BS
19 and the MS, at least temporarily until they were used, in order for the encryption algorithm to
20 have used the keys to encrypt and decrypt the communications.

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Regarding claim 8, Dent disclosed that the first BS sent a handoff command to a second BS, at which point the second BS sent key synchronization information to the MS (See Dent Col. 6 Lines 12-22).

Regarding claim 17, Dent disclosed that said encryption keys are frame specific (See Dent Col. 10 Lines 14-17), and are generated at both ends of said transmission connection (See Dent Figs. 2-3 Elements 115 and 115', Col. 8 Lines 54-57, Col. 10 Lines 14-17, Col. 11 Lines 39-41, and Col. 12 Lines 23-32).

Regarding claims 9-13, 16, and 18 Dent disclosed both the method and the system used to reject claims 1-5, 8, and 17 (See Dent Claims). Therefore, Claims 9-13, 16, and 18-21 are rejected for the reasons stated above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Dent as applied to claim 1 and 9 respectively above, and further in view of Kojima et al. (U.S. Patent Number 5,323,446) hereinafter referred to as Kojima.

Dent disclosed handing off a MS from a first BS to a second BS (See Dent Col. 6 Lines 12-15). However, Dent failed to disclose that the MS could initiate the handoff. Dent also

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1 disclosed that during this handoff, the voice channel is seized for authentication purposes and no
2 longer sends voice data (See Dent Col. 12 Paragraph 4).

3 Kojima teaches that if the mobile terminal requests the handoff to both the old and the
4 new base station, then the handoff can ensure transparency to the data signals (See Kojima
5 Summery of the Invention).

6 It would have been obvious to the ordinary person skilled in the art at the time of
7 invention to employ the teachings of Kojima in the invention of Dent by having the mobile
8 terminal send handoff requests to both the old and new base stations. This would have been
9 obvious because one skilled in the art would have been motivated to preserve data integrity in the
10 communication.

11 It would have been obvious in the combination of Dent and Kojima that the new base
12 station sent its synchronization information to the mobile terminal at the time of handoff request.
13 This would be obvious in order for the mobile terminal to communicate securely with the new
14 base station.

15 Claims 7 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Dent as
16 applied to claim 1 and 9 respectively above, and further in view of Gilhousen et al. (U.S. Patent
17 Number 5,101,501) hereinafter referred to as Gilhousen.

18 Dent disclosed handing off a MS from a first BS to a second BS (See Dent Col. 6 Lines
19 12-15), but Dent failed to disclose that the MS could initiate the handoff. However, Dent
20 disclosed the handoff signal originating at the old base terminal (See Dent Col. 6 Lines 12-15).

21 Gilhousen teaches that by providing the mobile unit with the ability to detect the need for
22 handoff, the mobile unit can become more aware of its possible communication paths much

9 It would have been obvious in the combination of Dent and Gilhousen that the new base
0 station sent its synchronization information to the mobile terminal at the time of handoff request.
1 This would be obvious in order for the mobile terminal to communicate securely with the new
2 base station.

3 Conclusion

5 The prior art made of record and not relied upon is considered pertinent to applicant's
6 disclosure.

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i. Rose (US Patent Number 6,252,958) teaches that updating an encryption key for each frame ensures that erased or out of sequence frames do not disrupt the flow of information.

ii. Schneier (Applied Cryptography Second Edition) disclosed that key updating protects against ciphertext attacks.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew T. Henning whose telephone number is (571) 272-3790. The examiner can normally be reached on M-F 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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1 Information regarding the status of an application may be obtained from the Patent
2 Application Information Retrieval (PAIR) system. Status information for published applications
3 may be obtained from either Private PAIR or Public PAIR. Status information for unpublished
4 applications is available through Private PAIR only. For more information about the PAIR
5 system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR
6 system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would
7 like assistance from a USPTO Customer Service Representative or access to the automated
8 information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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15 Matthew Henning
16 Assistant Examiner
17 Art Unit 2131
18 7/20/2006



7/20/06